

Historic, Archive Document

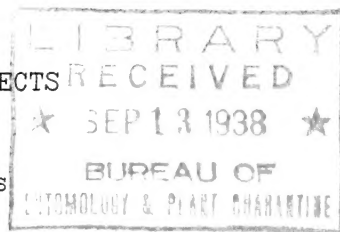
Do not assume content reflects current scientific knowledge, policies, or practices.

August 1938

United States Department of Agriculture
Bureau of Entomology and Plant Quarantine

EMERGENCE CAGES FOR LIGHT-ATTRACTED INSECTS

By Heber C. Donohoe,
Division of Control Investigations



The attraction to light shown by many adult insects has been the basis for various types of emergence cages which have been used with more or less success. The principle of all is somewhat the same--the enclosure of the insects in a dark chamber which opens into a lighted one, into which light-attracted individuals will travel and from which they may be readily removed.

Two types of emergence cans have been used by the writer in studies of emergence of the raisin moth (Ephesia figulilella Greg.) and the grape leaf folder (Desmia funeralis (Hbn.)) and their parasites from infested materials. While neither of the species involved has been sufficiently phototropic to result in the capture of all the individuals in the recovery jars, the percentages recovered were high.

Type 1.--One form of apparatus consists of two 1-gallon paper cans with the lids removed and the open ends fitted together into a collar. The collar was made from the lid of one can from which the disk and the crimped edge had been cut away.

A partition between the containers was made from this disk by trimming the edge and cutting a circular opening in the center, leaving a flat ring with a rim 1 inch wide. To the inner circumference of the ring was glued a cone of fine-mesh wire-cloth, 3 to 4 inches long, tapering to a 1/2-inch opening.

The collar from a 2-piece preserve jar lid was soldered around the cone, and into the threads of this collar a half-pint glass jar can be screwed. The disk which formed the partition and to which the cone was attached was then glued midway of the collar, into which the tops of both cans fitted. In the center of the inverted bottom of the upper can was cut a 2-inch hole over which a window of glass was glued.

The completed apparatus, set up in a vertical position (fig. 1, A), is composed of 4 pieces: (1) A lower can containing

infested material, (2) a collar encircling a ring in which a wire-cloth cone is attached, (3) an inverted glass jar removably attached over the tip of the cone, and (4) an upper can inverted over the cone and fitting into the central collar.

In operation, with infested material in the lower can, the assembled unit is placed so that light enters through the window. As adults emerge they tend to move upward toward the light, through the tip of the funnel, and into the glass jar enclosed within the upper can. At intervals the top can may be removed and the jar and screen cone examined for presence of adults. It is an advantage to be able to see the insects resting within the screen cone, since they can be dislodged before removing the jar, thus reducing the danger of escapes. If any are present in the jar, it can be exchanged for an empty one and the set-up continued. Paper containers for rearing insects appear to be superior to metal or glass, probably because of the lower heat conductivity of paper.

Type 2.--A second type is made from an ordinary 1-pound metal tobacco can, from the lid of which all but the rim is cut away, the central disk being replaced by a light-weight tin funnel to which is soldered a collar from a 2-piece preserve-jar lid, supporting a 1/2-pint jar (fig. 1, B).

For joining all parts of both types 1 and 2 referred to as glued or soldered, liquid solder was used as the fastening material.

Explanation of Illustration

Figure 1.-- Diagrams of the two types of emergence cages described in this circular.

EMERGENCE CAGES

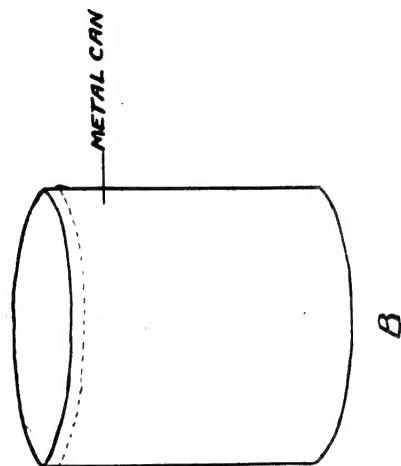
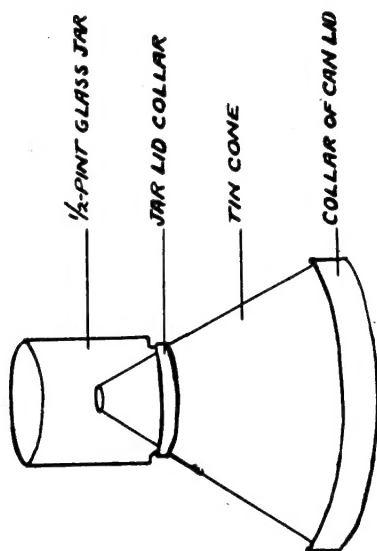
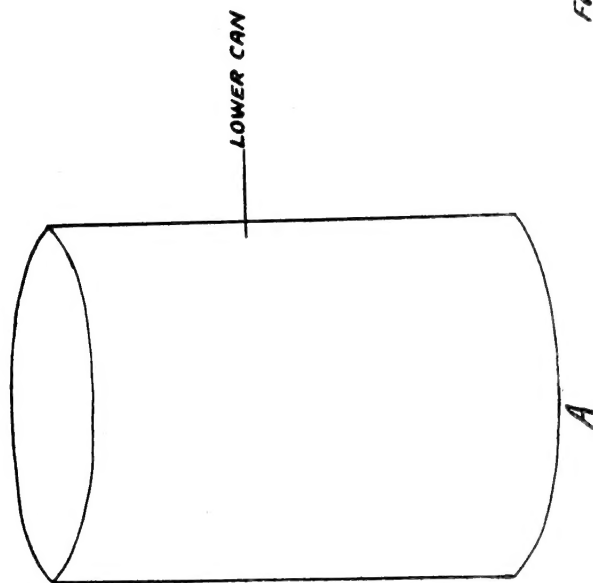
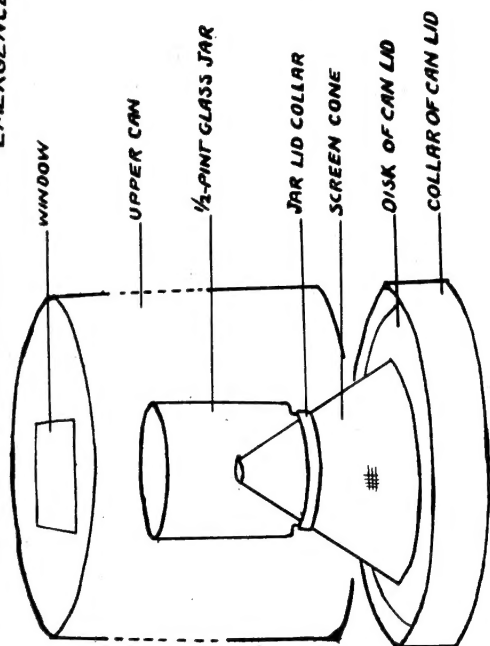


FIGURE 1

